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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,157	12/19/2000	Naoko Iwami	16869C-016600US	9696

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EXAMINER

TRUONG, LAN DAI T

ART UNIT	PAPER NUMBER
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2152

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/742,157	IWAMI ET AL.	
	Examiner	Art Unit	
	Lan-Dai Thi Truong	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/07/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23,24 and 26-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23,24 and 26-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/07/2006 has been entered.

2. This action is response to communications: application, filed on 12/19/2000; amendment filed 11/07/2006. Claims 23-24; 26-36 are pending; claims 34-36 are added.

3. The applicant's arguments file on 11/07/2006 have fully considered but they are moot in view with new ground for rejections

Claim rejections-35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23-24, 26-27, 29-36 are rejected under 35 U.S.C 103(a) as being unpatentable over Kitamura et al. (U.S. 6,854,034) in view of Takahashi (U.S. 6,282,197)

Regarding to claim 23:

Kitamura discloses the invention substantially as claimed, including a storage system, comprising:

A first I/O port for connection to a communication network; at least a second I/O port separate from the first I/O port for connection to the communication network, the first and second I/O port each receiving write requests: (Kitamura discloses communications between a plurality of computers and a plurality of storage devices; wherein the storage system includes “a plurality of ports” those are equivalent to “I/O ports” as claimed, therefrom the communication connections are established through: figure 1, items 4, 23; column 3, lines 62-65; column 10, lines 56-67)

An array of media for storing information, the array comprising a plurality of disk storage units organized into a plurality of logical disks: (Kitamura discloses a single storage device is made up of a plurality of disk units which is equivalent to “logical disks”): figure 1, item 21; column 1, lines 1-29; column 3, lines 1-67)

A plurality of data paths, each data path connectable between any one of the logical disks and any one of the I/O ports: (Kitamura discloses a plurality paths supporting communication between a computer host and storage device utilizing the plural interfaces to establish connections between ports and associated logical devices: figure 2; column 5, lines 27-53; column 6, lines 37-55)

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An allocator to allocate/ select one of the data paths between one of the logical disks and one of the I/O ports based upon a data rate capability of said one data path to thereby provide a desired quality of service: (Kitamura discloses “a control manager” which is equivalent to “an allocator” searches for the best path/ higher transfer rate for a connection between the host and the storage device based upon performance conditions such as storage device size or storage access rate: column 5, line 26-54; column 6, lines 1-56; column 7, lines 34-47; column 13, lines 34-38, 48-50; figure 9, column 6, lines 32-67; column 9, lines 24-47; column 10, lines 50-54)

However, Kitamura does not explicitly disclose step of using a configuration table to determine data path information to thereby provide a desired quality of service

In analogous art, Takahashi disclose “storage unit includes (bandwidth management table/routing table)” which shares functionality with “configuration table” which stores plurality of virtual paths wherein one of them will be selected based upon calculating required/used bandwidth values: figure 1, item 18; column 10, lines 1-14, 42-67; column 5, lines 27-32, 62-64; column 6, lines 1-12; column 11, lines 1-5; column 13, lines 15-24)

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Takahashi’s ideas of selecting establishing connection based upon calculated required/used bandwidth values with Kitamura’s system in order to provide an efficient communication system e.g using smaller bandwidth, see (Takahashi: column 5, lines 10-19)

Regarding to claims 29-30:

This claim is rejected under rationale of claim 23

Regarding to claim 24:

Kitamura-Takahashi discloses a storage system as in claim 23, which further includes the array of media includes media having different operational characteristics, and wherein the storage system allocates individual ones of the media to individual ones of the data paths to provide the desired quality of service: (Kitamura discloses the characteristics of storage units are different from each others such as low-speed disk drive and high-speed disk drive; the control manager searches for the best path for a connection between the host and the storage device based upon performance conditions: column 5, line 26-54; column 6, lines 33-56; column 7, lines 21-47: column 6, lines 35-45)

Regarding to claim 26:

Kitamura-Takahashi discloses a storage system as in claim 24, which further includes the array of media comprise hard disk drives, and the different operational characteristics comprise different communication speed of operation: (Kitamura discloses the characteristics of storage units are different from each others such as low-speed disk drive and high-speed disk drive: column 5, line 26-54)

Regarding to claims 27 and 31-33:

Kitamura-Takahashi discloses a storage system as in claims 24 and 30, which further includes allocating ones of the array of media based upon a data rate capability of the media and a data rate capability of a communication link coupled to one of the data paths: (Kitamura discloses the control manager searches for the best path for a connection between the host and the storage device based upon performance conditions such as transmit rate: column 5, line 26-54; column 6, lines 33-56; column 7, lines 21-47: column 6, lines 35-45)

Regarding to claims 34-36:

Kitamura-Takahashi discloses a storage system as in claims 23, 29 and, which further includes data rate capability of I/O ports and the array of storage media in the configuration table: (Kitamura discloses a configuration table contains many of different configuration items such as names of storage array and device numbers and etc; Although Kitamura's configuration table does not include data rates; but it would have been obvious to a person of ordinary skill in the art to know that data rates can also be added into the configuration table of Kitamura: figure 9, items 101 and 104)

Claim 28 is rejected under 35 U.S.C 103(a) as being un-patentable over Kitamura-Takahashi in view of Napolitano et al. (U.S. 6,301,605)

Regarding to claim 28:

Kitamura-Takahashi discloses the invention substantially as disclosed in claim 24, but does not explicitly teach allocating individual ones of the media based upon a guaranteed bandwidth

In analogous art, Napolitano discloses file array architecture which is scalable in capacity and bandwidth, see (column 4, lines 58-67)

Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Napolitano's ideas of scalable in capacity and bandwidth for file array with Kitamura-Takahashi's system in order to increase transaction speed, and decrease system latency, (column 5, lines 1-4)

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The prior arts made of records and not relied upon are considered pertinent to applicant's disclosure. The following patents and publications are cited to further show the state of the art with respect to "Guaranteed data access speed of a storage system": 6554034

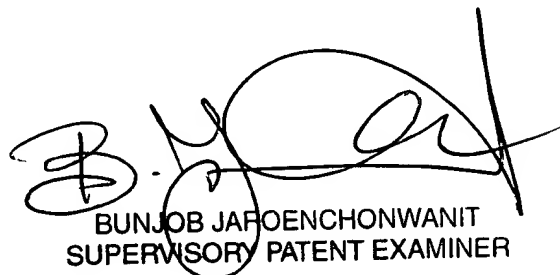
Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan-Dai Thi Truong whose telephone number is 571-272-7959. The examiner can normally be reached on Monday- Friday from 8:30am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob A. Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

01/18/2007


BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER